UWI BUILDING STANDARDS PROJECT
June 19, 2003
Working Group Meeting Minutes

Attendees- Bob Raymer, CBIA
Don Oaks, SoCal FPO
Dick Harrell, Wildland Fire Services
Rodney Slaughter, SFM
Tonya Hoover, Norcal FPO/Moraga-Orinda
Steve Quarles, UC Berkeley
Ingrid Icasiano, SFM
Melinda Terry, CA Forestry Assn.
Kate Dargan, CDF/Napa County
Phil Favro, Philip C. Favro & Assoc.
Grant Muller, AAMA/Mikron
Melissa Frago, SFM

Review of Previous Meeting-
- No changes to 04/04/03 minutes

Action Items-
- Distribute updated information on AB 1216 to all (Frago)
- Window related glossary provided by G. Muller
- Review General Technical Report INT 143 by Dick Rothermel (Harrell/Frago)
- Review Cohen, et al. references from Gettle/Rice paper (Harrell/Frago)
- Provide copy of Pagni paper on window research (Quarles)

General Discussion-
- UCFPL status (Frago/Quarles): Lab planned for closure due to budget constraints. Support letters may not help, but they can't hurt. They will certainly help the advisors and their standing. Current workload can continue through advisors and UC Extension program. Venting test process can continue in E108 testing facility. Advisors may still need to find an administrative home other than UCOP. Need to coordinate transfer of web information.
- Hoover: Is it possible to shift workload to Lawrence Livermore Lab or Lawrence Berkeley Lab?
- Quarles: Still hoping to remain at UCB lab facility
- Frago: SFM is committed to this project and will continue relationships with researchers and will do what it takes to keep this project running.
- Dargan: 3-5 year timeframe before fire testing becomes a critical need.
- Quarles: Quite willing to share info with commercial fire labs to continue research and performance testing. Omega Point fire lab will be using test deck protocol – has not yet used it or given feedback on protocol or test results.
- Dargan: Can you look at these regulations and consider a house that is constructed this way no longer has a fire issue?
- Muller: Intent is to minimize risk only. Not an absolute.
- Dargan: This needs to be a combined approach with vegetation and construction. Somewhere it needs to be made clear that this code can not be adequate without

being coupled with landscape and vegetation management. One can not succeed without the other.

- Slaughter: Existing model codes take primarily a vegetation approach. These two issues will need to be tied together in the course of this or related project. T19 reference?
- Oaks: Adding structures to the overall assessment of fire behavior and fire spread is a big issue and needs to be reflected in new standards. Components of homes today are so new and different, that their fire performance and the challenges they present are unpredictable at this time.
- Dargan: Vegetation management should help prevent direct flame exposure. Not intended to make building components resist direct exposure to forest fire. Reasonable standard of cost and benefit is the goal.
- Oaks: Ultimate goal would be to allow safe to stay construction.
- Harrell: This approach can make firefighting resources more effective by reducing the commitment to each structure
- Dargan: Vegetation standards need to be the same for new and existing construction, perhaps even more stringent on existing construction due to tradeoffs (firebreaks/construction) on new construction that would allow less stringent (although still require) veg manament.

LEGISLATIVE UPDATE-

- Frago: Assembly Bill 1216 passed Assembly, passed Senate HCD committee and Senate NR&W committee (7/8/03). Senate Appropriations is next stop.
- Terry/Raymer: recent amendment in regard to mapping for applicability of building standards – local changes are non rebuttable
- Frago: Map meeting with CDF indicated original Bates Bill maps were flawed. Locals can make additions and deletions. Applicability will encompass 20-30% of CA.
- Raymer: CDF needs to identify more specific areas
- Hoover: Local agencies have to post maps for public view (Bates Bill)
- Dargan: What do jurisdictions with mixed responsibility do (i.e. Santa Barbara Co.)?
- Raymer: What if local jurisdiction does nothing? CDF should show specific applicable areas to alleviate confusion at local level.
- Dargan: Hazard layers to overlay with local parcel maps
- Raymer: SFM workload may be too big to deal with unless locals can finalize their own maps
- Frago: Applicability to new construction or permitted remodels/additions unless local code is more stringent. New footprint and conditioned air space to fall within new building standards.
- Dargan: Sizable areas are covered, and this is not yet on the radar of local planning departments to deal with

WALLS/WINDOWS-

- Frago: 1 hour wall overkill? Industry is used to it, but is the cost too high? Check this issue on CBA. Maybe it could be a prescription, but if someone wants to go through the testing procedures they could use an alternate configuration.
- Favro: Through penetrations and firestopping consistent with a one hour design may contribute to cost increases
- Oaks: Performance does not preclude Rx
- Raymer: 80% Rx has changed to about 98% performance
- Muller: One hour window for one hour wall?
- Quarles: Perform to E119 standard

- Favro: How wall is constructed has an impact. 1 hour is not so much construction of wall. Rated doors and windows on exterior will be significant cost impact.
- Hoover: Committee not leaning toward one hour window, but just the performance.
- Oaks: When looking at performance, you look at every component that would be part of the building envelope. When Rx is developed, you expect different things from doors, walls, windows, depending on its circumstances. Once a few consultants go through performance process, this will become clearer.
- Raymer: Initially the framework Rx standards provide will be vital to continuance of construction industry. AB 1216 is moving through legislature quickly. Product manufacturers are just learning about the bill. They will be seeking amendments to indicate that when a standard is referenced, commonly used scenarios will be identified.
- Muller: Far fewer options would be available under a component approach. Lack of a rating system (AAMA TIR) for windows under wildland scenario. Task group is looking to develop a standard that will include impact, radiant heat. Industry would like to work to help develop standards so the response is a coordinated approach
- Raymer: CEC has pushed industry into using vinyl windows
- Muller: Industry is naturally going to go with vinyl, PVC, etc. to deal with energy rating requirements. Need a regulation that will be workable within the industry.
- Raymer: CEC is allowing trade-offs for window surface area with increased insulation, etc.
- Muller: Transparent walls (thick glass) are high cost (iron reduced for clarity). Laminate expands as it is exposed to heat for insulating value. ~$125 sf. Intended to insulate against fire. Pyrostop: Pilkington (intumescent coating for glass).
- Oaks: Philosophy is the same. Experience with options will follow. We need empirical data that shows what options work.
- Raymer: Would like to farm out a sample of standards within a few more meetings to get feedback from manufacturers and construction industry.
- Muller: Glass breakage in tempered glass is due to a combo of thermal stress and microscopic edge damage. Annealed glass can break with a 50 degree differential. Tempered allows about 4x this.

SKYLIGHTS:

- Hoover: Put requirements in glass/glazing chapter(s) and make a note that references Chapter 7A so language is not too spread out.
- Muller: Skylights tend to be tempered on the exterior and laminated on the interior. Tempered glass is strongest for hazardous locations.
- Harrell: Impact is biggest issue for skylights, and how does surface area affect performance?
- Muller: Impact resistance info is readily available from window industry at a reasonable cost.
- Raymer: CEC considers a skylight like a hole in the roof.
- Muller: Size is already limited (width) and glass properties are not affected by size.
- Favro: Acrylic products can withstand impacts, but what about heat?
- Icasiano: CC1 and CC2 standards for skylights in Chapter 26.
- Muller: Radiant energy is an issue.
- Hoover: Need to deal with both Chapters 24 and 26 – human impact and fire resistivity-
    - Equivalence to falling ember?
    - Is there a familiar standard out there?
    - Screening and framing criteria?

    - How to prevent embers from entering?
- Raymer: Are large flying embers a common thing?
- Dargan: Not many firefighter impact injuries due to flying embers

VENTS/MOISTURE-
- Dargan: Moisture research as related to vent opening and mesh sizes. This needs to be considered.
- Quarles: Research exists for crawlspace ventilation (article). Need to gather more information about roof ventilation issues.
- Quarles: In temperate climates, leaks in construction elements are a main factor in mold growth and moisture accumulation.
- Oaks: Can't rule out insufficient ventilation as a contributing source.

APPLICABILITY-
- Muller: How far into developed areas will these standards apply?
- Slaughter: Local decision. Individual homes will probably be treated differently from large clusters of development.
- Oaks: Issue is self-correcting from a performance standpoint
- Frago: Individual homes (ie Gavilan Fire) can be lost by ember spread only
- Dargan: House to house fire spread is common in large wildland interface fires. Application to VHFHSZ: maps are source. What about application within specific subdivisions? Does purpose and scoping language indicate this?
- Dargan: Parcel level zoning maps will be a necessary phase 2 of this project. Build into OPR general plan guidelines and zoning requirements?

CONSIDERATIONS-
- WINDOWS: Wind velocity? Radiant temperature? Duration of exposure?
- Definitions for EMBER and EXPOSURE
- Background for NFPA 20 minute wall requirement? All exterior openings. (E119)? Ken Blonski (and Herb Spitzer?) on the 1144 committee – may have more background info.
- Related regulations to deal with impact of moisture issues on changes due to fire issues?
- Cohen's radiant heat flux graph from Harrell's Training &Cert final report
- Conversion of BTUs to Megawatts
- Duration of exposure as related to heat flux and material/assembly ignition properties
- Cohen research about window breakage information (Training & Cert. Binder)
- Midwestern window research? By whom? Gould?
- Where are alcoves covered in the code?
- Under deck storage (maintenance issue)
- Inspector training curriculum for certification and/or community colleges? State Fire Training?